In the young worm which has just escaped from the cocoon, the funnels are ciliated, and they are each of them connected by a short tube, in which a lumen has been developed, but which ends blindly in close proximity to a coil of nephridia. No trace of any nephridial tube other than the sperm duct or oviduct could be observed, whereas, in the preceding and succeeding segments the rudimentary nephridial funnel and a straight tube leading from it direct to the body wall were perfectly plain. Dr. Bergh* has figured, in his account of the development of the generative organs of *Lumbricus*, a nephridial funnel in close contact with the funnel of the genital duct. It may be suggested that a corresponding funnel has been overlooked in the embryo *Acanthodrilus;* the continuity of a structure, identical (at first) with the nephridia of the segments in front and behind, with the genital funnels, seems to show that a search for an additional nephridial funnel would be fruitless.

I can only explain these facts by the supposition that *in Acanthodrilus multiporus the genital funnels and a portion at least of the ducts are formed out of nephridia.* This mode of development is a confirmation, to me unexpected, of Balfour's suggestion† that in the Oligochæta the nephridium is broken up into a genital and an excretory portion.

In the comparison of the facts, briefly described here, with the apparently independent origin of the generative ducts in other Oligochæta, it must be borne in mind that in *Acanthodrilus* the segregation of the nephridium into several almost detached tracts communicating with the exterior by their own ducts precedes the formation of the genital ducts.

II. "The Patterns in Thumb and Finger Marks: on their Arrangement into naturally distinct Classes, the Permanence of the Papillary Ridges that make them, and the Resemblance of their Classes to ordinary Genera." By FRANCIS GALTON, F.R.S. Received November 3, 1890.

(Abstract.)

The memoir describes the results of a recent inquiry into the patterns formed by the papillary ridges upon the bulbs of the thumbs and fingers of different persons. The points especially dwelt upon in it are the natural classification of the patterns, their permanence throughout life, and the apt confirmation they afford of the opinion that the genera of plants and animals may be isolated from one another otherwise than through the influence of natural selection.

* 'Zeitschr. Wiss. Zool.,' 1886.

† 'Compar. Embryol.,' vol 2, p. 617.

The origin of the patterns was shown to be due to the existence of the nail, which interfered with the horizontal course of the papillary ridges, and caused those near the tip to run in arches, leaving an interspace between them and the horizontal ridges below. This interspace was filled with various scrolls which formed the patterns. The points or point at which the ridges diverged to enclose the interspace were cardinal points in the classification. It was shown that there were in all only nine possible ways in which the main features of the inclosure of the interspace could be effected. In addition to the 9 classes there was a primary form, occurring in about 3 per cent. of all the cases, in which the interspace was not clearly marked, and from this primary form all the other patterns were evolved. The forms of the patterns were easily traced in individual cases by following the two pair of divergent ridges, or the one pair if there was only one pair, to their terminations, pursuing the innermost branch whenever the ridge bifurcated, and continuing on an adjacent ridge whenever the one that was being followed happened to come to an end. 25 of the principal patterns were submitted, and a few varieties of some of them, making a total of 40. They are by no means equally frequent.

The data as to the permanence of the patterns and of the ridges that compose them were supplied to the author by Sir W. J. Herschel, who, when in the Indian Civil Service, introduced in his district the practice of impressing finger marks as a check against personation. Impressions made by one or two fingers of 4 adults about 30 years ago, and of a boy 9 years ago, are compared with their present impressions. There are eight pairs of impressions altogether, and it is shown that out of a total of 296 definite points of comparison which they afford, namely the places where ridges cease, not one failed to exist in both impressions of the same set. In making this comparison, no regard was paid to the manner in which the several ridges appear to come to an end, whether abruptly or by junction with another ridge. The reason was partly, because the neck where junction takes place is often low and may fail to leave a mark in one of the impressions.

Lastly, the various patterns were shown to be central typical forms from which individual varieties departed to various degrees with a diminishing frequency in each more distant degree, whose rate was in fair accordance with the theoretical law of frequency of error. Consequently, wide departures were extremely rare, and the several patterns corresponded to the centres of isolated groups, whose isolation was not absolutely complete, nor was it due to any rounding off by defined boundaries, but to the great rarity of transitional cases. This condition was brought about by internal causes only, without the least help from natural selection, whether sexual or other. The

distribution of individual varieties of the same patterns about their respective typical centres was precisely analogous in its form, say, to that of the Shrimps about theirs, as described in a recent memoir by Mr. Weldon (' Roy. Soc. Proc.,' No. 291, p. 445). It was argued from this, that natural selection has no monopoly of influence either in creating genera or in maintaining their purity.

III. "Preliminary Note on the Transplantation and Growth of Mammalian Ova within a Uterine Foster-Mother." By WALTER HEAPE, M.A., Balfour Student at the University of Cambridge. Communicated by Professor M. FOSTER, Sec. R.S. Received November 12, 1890.

In this preliminary note I wish merely to record an experiment by which it is shown that it is possible to make use of the uterus of one variety of rabbit as a medium for the growth and complete fœtal development of fertilised ova of another variety of rabbit.

Briefly, the experiment made was as follows:—On the 27th April, 1890, two ova were obtained from an Angora doe rabbit which had been fertilised by an Angora buck thirty-two hours previously; the ova were undergoing segmentation, being divided into four segments.

These ova were immediately transferred into the upper end of the fallopian tube of a Belgian hare doe rabbit which had been fertilised three hours before by a buck of the same breed as herself.

It may be well to mention here, I bought this Belgian hare doe some three months before; the man from whom I bought her bred her, and guaranteed her to be a virgin doe of about seven months old. During the time I had her, until the 27th April, she had never been covered by a buck of any breed, being kept *always* isolated from the various bucks in my rabbitry.

In due course this Belgian hare doe gave birth to six young—four of these resembled herself and her mate, while two of them were undoubted Angoras. The Angora young were characterised by the possession of the long silky hair peculiar to the breed, and were true albinoes, like their Angora parents.

As a proof of their parentage, I would add they inherit a habit which nearly all the Angoras I have kept affect—it was marked in their Angora mother and especially pronounced in their father—a habit of slowly swaying their head from side to side as they look at you. I mention this fact because I have never observed the same habit in any breed of rabbits except Angora.

It should be remembered also as a further proof that I put into the Belgian hare doe *two* fertilised ova from the Angora doe, and that *two* Angora young were borne by the former.